Life Cycle Assessment of Palm Oil – PT Smart Pilot Study on GHG and Biodiversity Mitigation Options

Jannick Schmidt[1], Haskarlianus Pasang[2], Rifki T Noor[2] and Imanuddin Utoro[2]

[1]2.-0 LCA consultants, Rendsburggade 14, Room 4.315B, 9000 Aalborg Denmark
email: Jannick.schmidt@lca-net.com
[2]Sinarmas Agribusiness and Food

ABSTRACT

PT SMART has taken a drastic step during 2017 by undertaking a pilot project life cycle assessment (LCA) study for palm oil production at the Sungai Rungau palm oil mill (POM) in Central Kalimantan. The purpose of the study is to obtain an overview of the overall environmental impacts and hotspots of palm oil production at Sungai Rungau, to compare this with the industry average, and to quantify the magnitude of achievable reductions in GHG and biodiversity impacts by means of traditional mitigation options as well as nature conservation. The LCA includes emissions from all product stages in the life cycle of palm oil production, namely cultivation, oil mill, and refining, as well as upstream activities such as production of fertilizers and fuels. The effects of GHG emissions and biodiversity from indirect land use changes and nature conservation are included by means of recent methodical developments.

The results show that the overall impact from PT. SMART's production is 2.27 kg CO2-eq. and 1.05 ha*year (biodiversity adjusted hectare years). Compared to the industry average, palm oil from PT. SMART is associated with 56% lower impacts on GHG emissions and 37% lower impacts on biodiversity. PT. SMART current nature conservation sites, which occupies 7.5% of the study area, reduces GHG emissionsby 1% and biodiversity impacts by 14%. By installing biogas capture in Sungai Rungau POME, the GHG emissions can be further reduced by up to 57%.